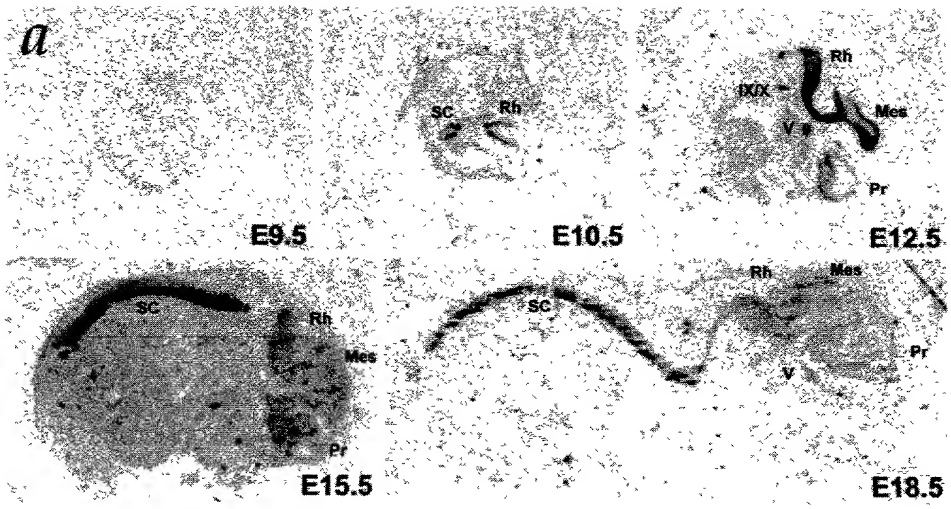

a
E9.5
SC
Rh
E10.5
Rh
IX/X
Mes
V
Pr
E12.5
SC
Rh
Mes
Pr
E15.5
SC
Rh
Mes
Pr
V
E18.5

FIG. 1A

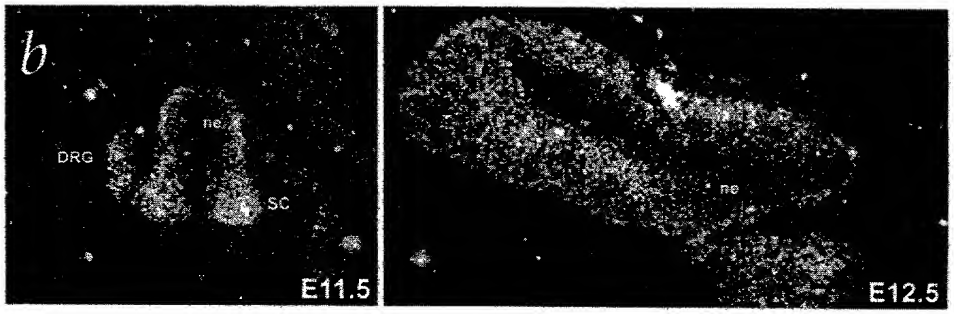

b
DRG
ne
SC
E11.5
ne
E12.5

FIG. 1B

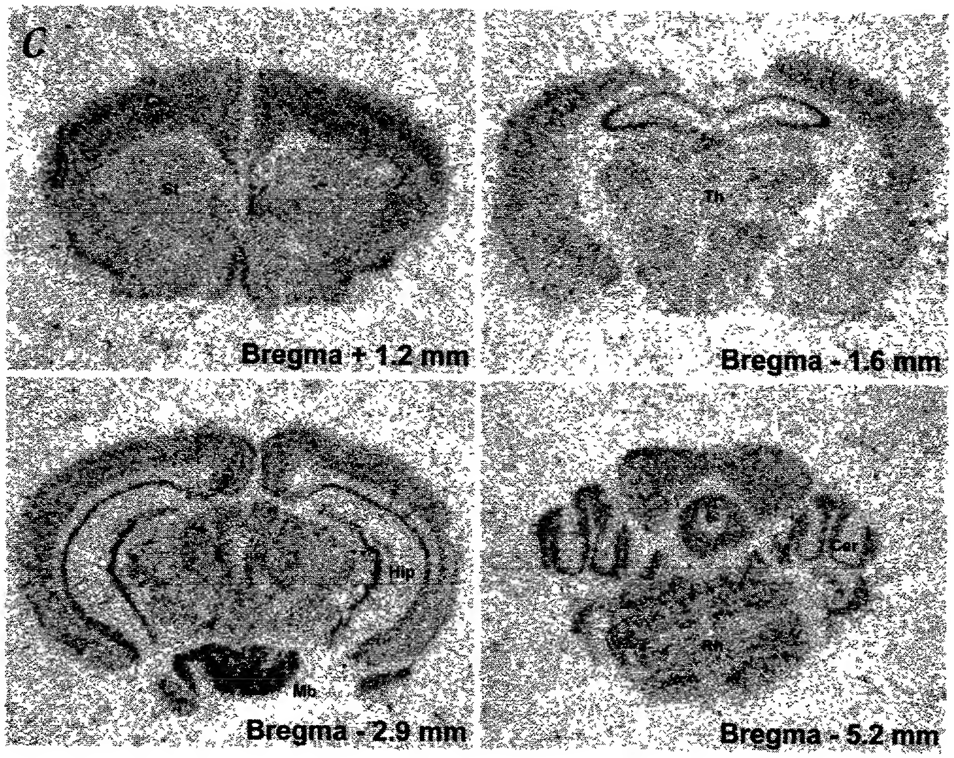

C
St
Bregma + 1.2 mm
Th
Bregma - 1.6 mm
Hip
Mb
Bregma - 2.9 mm
Cer
Rh
Bregma - 5.2 mm

FIG. 1C

FIG. 2A

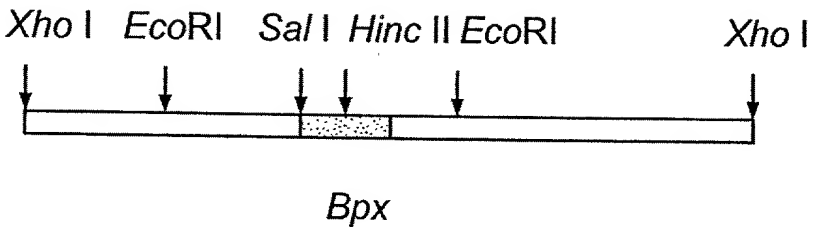


FIG. 2B

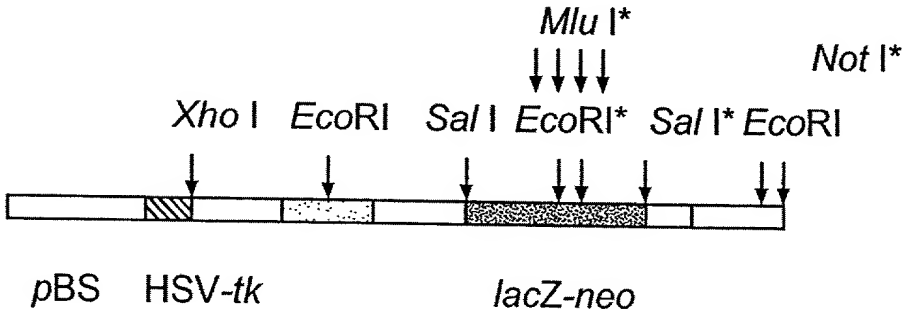
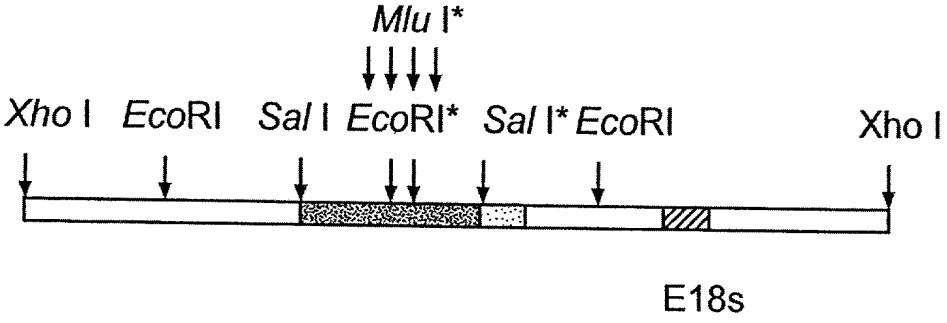


FIG. 2C



* INTRODUCED SITES

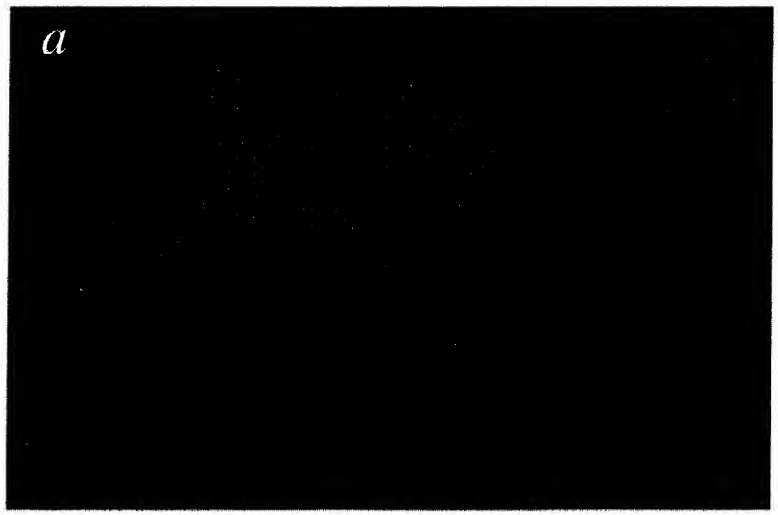


FIG. 3A

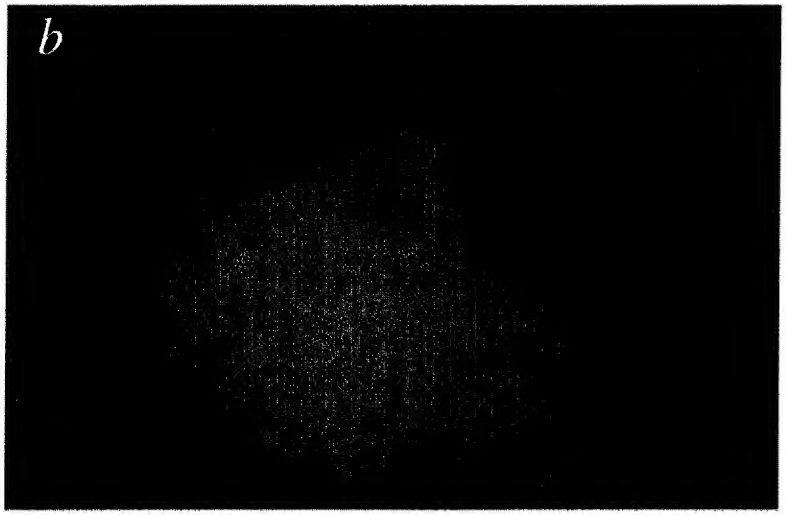


FIG. 3B

FIG. 3C

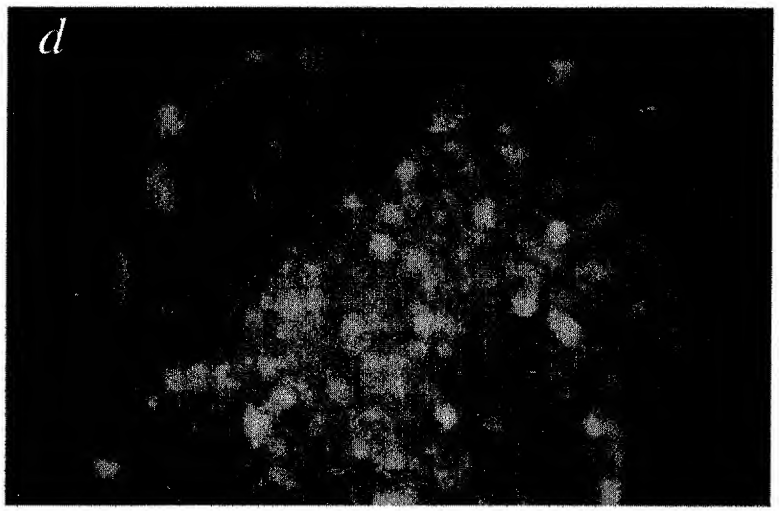


FIG. 3D

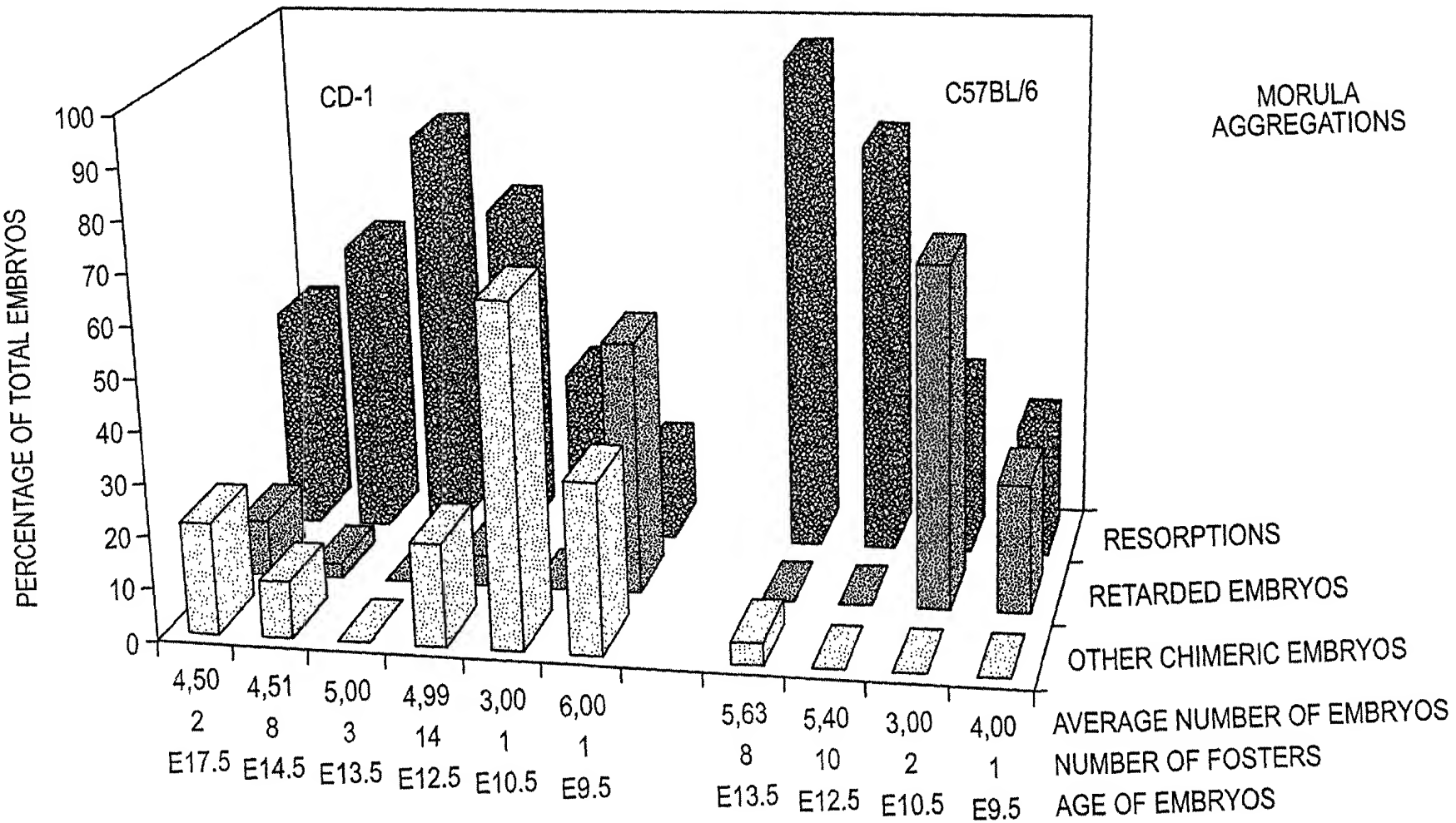


FIG. 4

E12.5

FIG. 5A

FIG. 5B

FIG. 5C

FIG. 5E

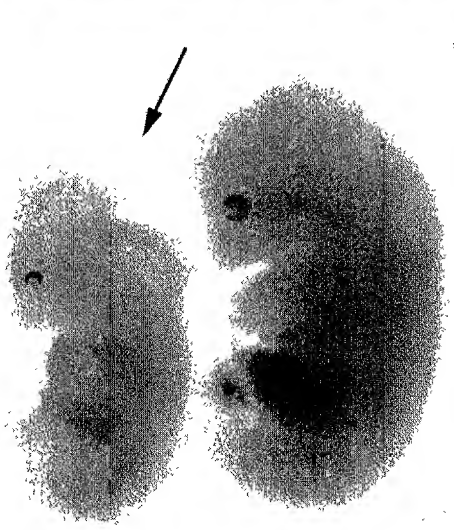


FIG. 5D

E17.5

FIG. 5F

E14.5

FIG. 5G

E10.5

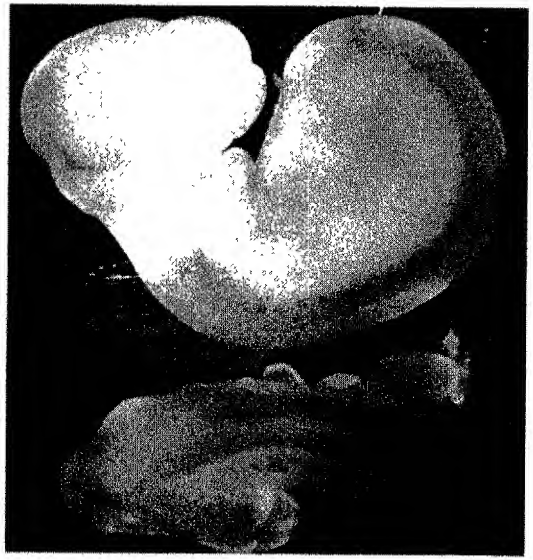


FIG. 5H

E9.5

FIG. 5I

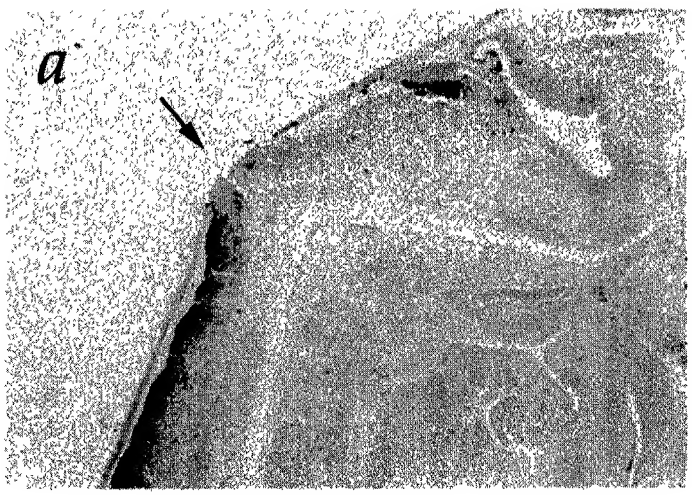


FIG. 6A

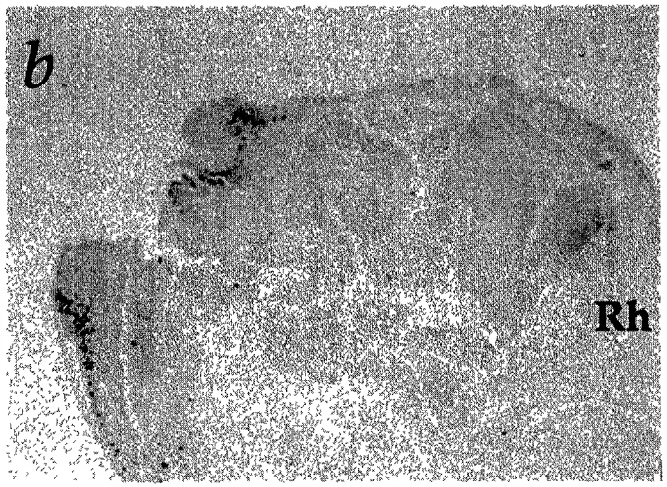


FIG. 6B

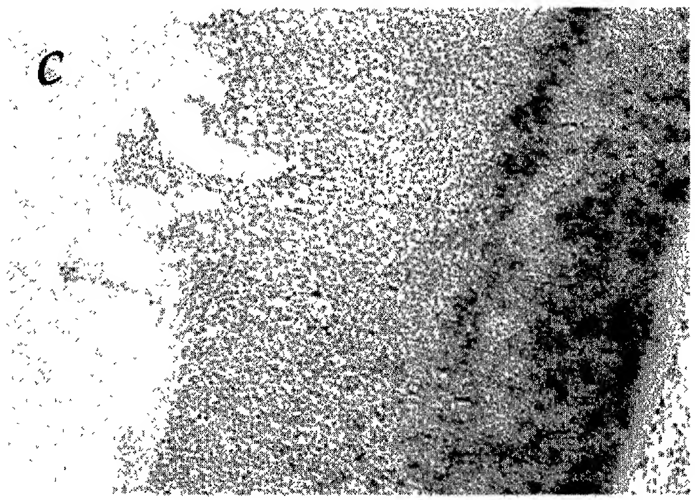


FIG. 6C

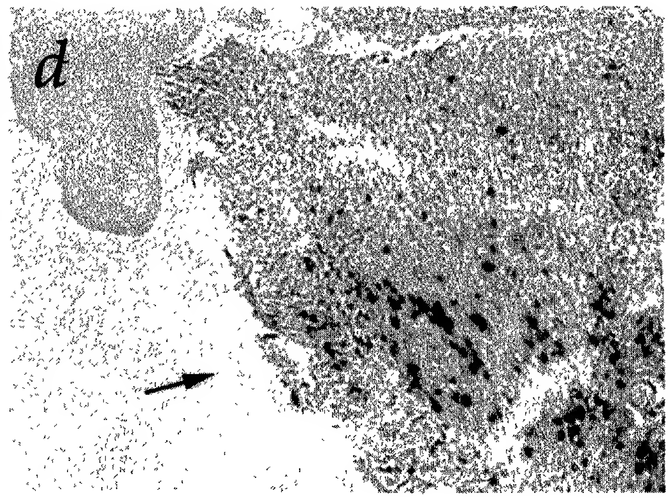


FIG. 6D

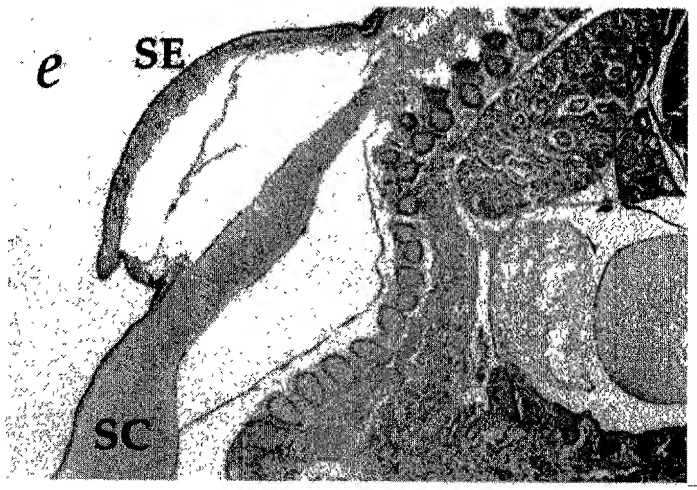


FIG. 6E

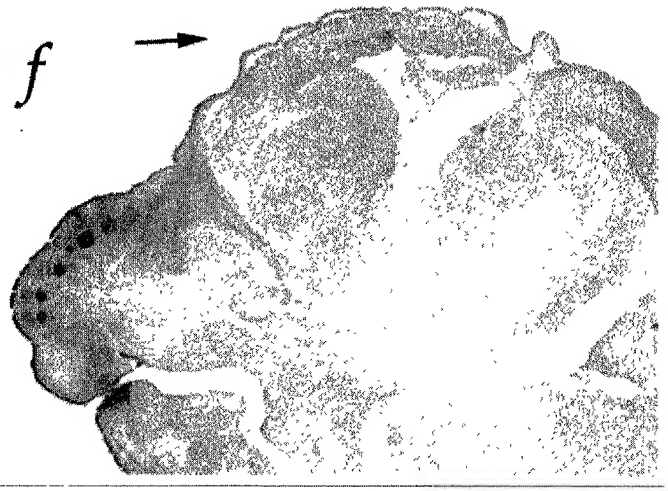


FIG. 6F

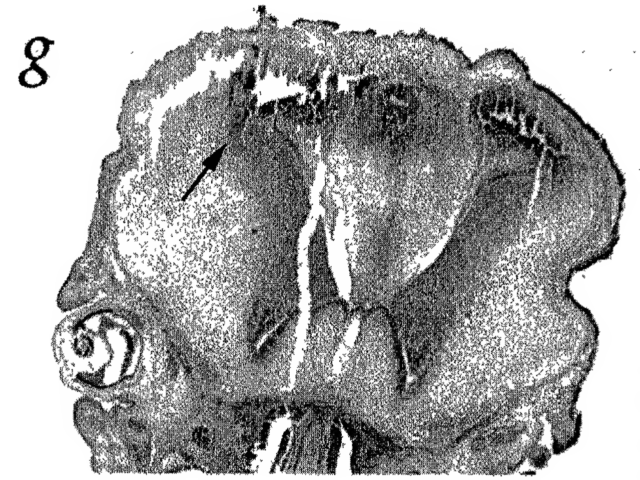


FIG. 6G

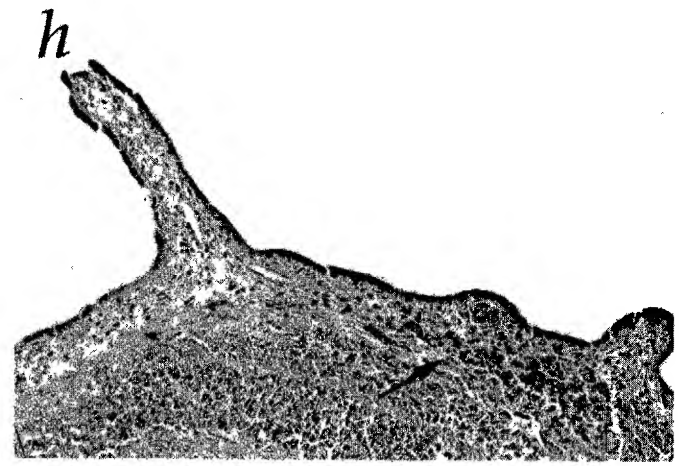


FIG. 6H

SEQUENCE CLONE *Bpx* PROMOTER MURIN SPEI-SALI FRAGMENT

ACTAGTCATATAGCTGGCTCTTTTACAAAAGGCTTCAACACCCCTCCCCC
CACACTTTAGTCATCCGTCATCTCTTCCTCATCAGGAAATATTATGAGAA
TTTTCCCATTTAAAATCACACAGGTTGTGAAAATTACAGAAACCAGGGTA
CAGAATATTTAAACCACTGTCAGTTACATCATCCAAAGGCCACCTATGCT
TATTTTTGGTAATTTTAAACCTCAAAGGATCTCTTTGTGGGCTCCTCCACT
ACCCTCCTCTCTTTCCCAGAGCCTCAGGTTATAACCAAAGGGATAGACTA
AAGACAATCCAGTACCTTGCCCATTTTTTTCATTCCTTGTCACTGTTTCCA
TATAGCTCTTTTGAAATTATGAACATATAGTATCAGTTGAAAACGGAATG
AATGATACTGCATTTCTGCAAAATTCCACAGGCTATAGGGTGGAAGATG
AGCCATAGGTGGAGGAATCAGCCATATTAGAGAATCTGGGAAGGCAAG
AGGTGTTGAAATTTTGATTCATCTACTAATTTACTGGCTCAGGATTTGTC
AATCACTGCAGCCTGGCAAATGAGATTAGAGAAGAGTCCTGGGAGGGA
AGGGGTGACGCAGCAACCTGCATACACTTAAAAAAAAAGAGCTGAGAG
ACAACTGCGTAATCATACTGCGGCACCAGTTCCTCCATCCCTCCGCCCCC
GAGTGGCTGGAGCAGCTGCTTGCGGAGGTCTGCCCACTGCGGCTCTCTG
CAGTCTCTAGCCTGTTCCTTCAGGGCCTAGAGTCTCCGCCCAGACAGCCG
GTTTCAATTCTGCTATCCCAGCTTCAGCACCGTCTTTTATACTGCTTGCTG
CCTGCCATCAGTGCAGCCGCCGCCTCTTGGTTCATCTCTGCCAGATC
ATCGCGCATCTGCTGTATTGGTGAGTCTTCCTGCGGAGGTCAGGTCTCCT
GATCTGCGGGCTTAGCCACCATAAGTGCAGGCGATCGTTTGAAAACAAT
GGCTGAATCAGTCGACCTCGAGGGGGGGCGTACCTTGCCCATTTTTTTCA
TTCCTTGTCACTGTTTCCATATAGCTCTTTTGAAATTATGAACATATAGTA
TCAGTTGAAAACGGAATGAATGATACTGCATTTCTGCAAAATTCCACAG
GCTATAGGGTGGAAGATGAGCCATAGGTGGAGGAATCAGCCATATTAGA
GAATCTGGGAAGGCAAGAGGTGTTGAAATTTTGATTCATCTACTAATTTA
CTGGCTCAGGATTTGTCAATCACTGCAGCCTGGCAAATGAGATTAGAGA
AGAGTCCTGGGAGGGAAGGGGTGACGCAGCAACCTGCATACACTTAAA
AAAAAAGAGCTGAGAGACAACTGCGTAATCATACTGCGGCACCAGTTCC
TCCATCCCTCCGCCCCCGAGTGGCTGGAGCAGCTGCTTGCGGAGGTCTG
CCCACTGCGGCTCTCTGCAGTCTCTAGCCTGTTCCTTCAGGGCCTAGAGT
CTCCGCCCAGACAGCCGGTTTCAATTCTGCTATCCCAGCTTCAGCACCGT
CTTTTATCCCCACTGCTTGCTGCCTGCCATCAGTGCAGCCGCCGCCGCCT
CTTGGTTCATCTCTGCCAGATCATCGCGCATCTGCTGTATTGGTGAGTCT
TCCTGCGGAGGTCAGGTCTCCTGATCTGCGGGCTTAGCCACCATAAGTG
CAGGCGATCGTTTGAAAACAATGGCTGAATCAGTCGAC

[SEQ ID NO:1]

FIG. 7

SEQUENCE *Bpx* MURIN cDNA IDENTICAL TO GENOMIC DNA

GTACCTTGCCCATTTTTTTCATTCCTTGTCACTGTTTCCATATAGCTCTTTT
GAAATTATGAACATATAGTATCAGTTGAAAACGGAATGAATGATACTGC
ATTTCTGCAAAATTCCACAGGCTATAGGGTGGAAGATGAGCCATAGGTG
GAGGAATCAGCCATATTAGAGAATCTGGGAAGGCAAGAGGTGTTGAAAT
TTTGATTCATCTACTAATTTACTGGCTCAGGATTTGTCAATCACTGCAGC
CTGGCAAATGAGATTAGAGAAGAGTCCTGGGAGGGAAGGGGTGACGCA
GCAACCTGCATACACTTAAAAAAAAAGAGCTGAGAGACAACTGCGTAAT
CATACTGCGGCACCAGTTCCTCCATCCCTCCGCCCCCGAGTGGCTGGAG
CAGCTGCTTGCGGAGGTCTGCCCACTGCGGCTCTCTGCAGTCTCTAGCCT
GTTCCTTCAGGGCCTAGAGTCTCCGCCCAGACAGCCGGTTTCAATTCTGC
TATCCCAGCTTCAGCACCGTCTTTTATCCCCACTGCTTGCTGCCTGCCATC
AGTGCAGCCGCCGCCGCCTCTTGGTTCATCTCTGCCAGATCATCGCGCAT
CTGCTGTATTGGTGAGTCTTCCTGCGGAGGTCAGGTCTCCTGATCTGCGG
GCTTAGCCACCATAAGTGCAGGCGATCGTTTGAAAACAATGGCTGAATC
AGTCGACCATAAAGAACTGTCTGAATCCAACCAAGAAGAGCTTGGCAGC
CAGGTAATGGCGGAGGGGCCCGGGGAAAGTCAGGACCGCAGTGAAGGT
GTCTCCATTGAGCCTGGAGATGGCGGGCAACATGGTGAAGAAACCGTGG
CTGCTGGAGTAGGGGAAGAGGGAAAAGGTGAAGAAGCTGCTGCAGGGT
CTGGGGAAGATGCTGGGAAGTGCGGAGGCACTGATGAGGACTCAGACT
CAGACCGTCCAAAAGGACTTATCGGTTATCTTTTAGATACCGATTTCGTT
GAAAGTCTCCCAGTGAAAGTTAAGTGCCGAGTGCTAGCTCTTAAAAAGC
TTCAAACAAGAGCTGCCCATTTGGAATCGAAATTCCTGAGGGAATTTCAT
GACATTGAAAGGAAGTTTGCTGAAATGTACCAACCCTTACTAGAAAAAA
GACGACAGATCATCAATGCAGTCTATGAGCCCACAGAAGAGGAATGTGA
GTATAAATCGGACTGTGAGGACTATTTTGAGGAGGAGATGGATGAGGAG
GAAGAGACTAACGGCAACGAAGACGGTATGGTGCATGAATACGTGGAT
GAAGATGATGGTTATGAGGACTGTTATTATGATTATGATGACGAGGAAG
AAGAGGAGGAGGAAGATGACAGCGCTGGGGCCACCGGAGGAGAAGAG
GTTAACGAAGAGGATCCTAAGGGGATTCCGGATTTTTGGTTGACTGTTTT
AAAAAATGTTGAAGCACTCACTCCTATGATTAAGAAATATGATGAGCCT
ATTCTGAAGCTGCTGACAGATATTAAAGTGAAGCTTTCGGATCCCGGGG
AGCCTCTCAGCTTCACACTCGAATTTCACTTCAAGCCCAATGAATATTTT
AAAAATGAGCTGTTGACAAAGACTTATGTGCTGAAGTCAAAGCTTGCAT
GCTACGATCCCCACCCTTATAGGGGAACTGCCATTGAGTACGCCACTGG
CTGCGACATAGATTGGAACGAAGGGAAGAATGTCACTTTGAGAACCATC
AAGAAGAAGCAGAGACATCGCGTCTGGGGAACTGTCCGAACTGTGACTG
AAGATTTTCCCAAGGACTCTTTCTTCAATTTCTTCTCTCCTCATGGGATCA
GCTTAAATGGAGGGGATGAAAATGATGATTTTTTACTTGGTCATAATCTG

FIG. 8

CGTACTTACATAATTCCAAGATCAGTGTTATTTTTCTCAGGAGATGCACT
TGAATCTCAGCAGGAGGGTGTAGTTAGGGAAGTTAATGACGAAATATAT
GACAAAATTATTTATGATGATTGGATGGCTGCAATTGAAGAGGTTAAAG
CCTGTTGCAAAAATCTTGAGGCATTAGTAGAAGATATTGATCGTTAAAAC
AGAGTAGATGCTTTTGAAACTAACTGCTCTACATGCAGTTACTGAAGACA
TAAGCAGTTAATATTGTCTTGTGTTCTGCATTTTTTCCTGTCATGCCAGTT
TAAAAATTCAAATACTAATTAATCTGACCTTGCATTGTAGTGGTATGATG
TTTTCAAGACATGTAGACTGTGATAAATGATTAAGACATTAATAGTCTGT
AGTATAACCCTTCTGAAGTCCTTGTGCCATGTATCTATTAATCTGTGGCT
GTGAATATTATTAGAAGTGCTAAATGAGATTATTTGTTTGCAAAGAAAAT
ATTGGAAACCTACCTAAGAGTGCTTTGCTATTTTCCCCCTTATCCTCTTAG
TGCTTTGGCCAATTGACTTTATTGTGCCTGCTTCATTTTGCAGTAAATATG
CAGTAGAATTTAAAACTTGAATGCCTAAGAGGCCTGCATATGATTGAGA
ATTTCAGGCAAAATCATATTTATTATTGATAACAGCTAGTGCAAGGCTTC
TGATTGTATGTGACTGTGATAAATAATAAAACTCAATTGTATTGAAGTTA
CTGTTTATCATTGACATGTGAGTTACAGTATTTTCAAATGTTGCAAATATT
GTCCTGTGTAATTGTGTAAACTGTGATTACAGTGTACATTTTTTTCATAAT
ATACTGAATCATTCATTGAAATGGACACTTTACCATTTCTGAAAATACAT
TTCATATTCTGTTCATTCACTGAAAAATAAAATGAATAAAAATTT

[SEQ ID NO:2]

FIG. 8
CONTINUED

Bpx HUMAN cDNA IDENTICAL TO GENOMIC DNA

TGTTAGAGAGCCTGGGAAGGTGAGcAGAGcTGAAAACTTGATAGATCTA
ATAATTTACTGGCTCTGGGTTTGTCAGTCACTACATTGCAGCAAATGAGA
TTAGAGCATAGTTGTGGGAGGGAAGGAGGTGACGCAGCAATCTATTTGC
ACCTAGAAATTTTAGGCAAGTGATAGCTGCGTAATCATACTGCGGCACC
GTTTTTTTCTTGCAGCAGTAGCTGCTTGCGGAGGAGGTCTGCCCACTGCA
GCTCTCTGCAGTCTCCGGCTCTCTCCTGCAGGATCGGTCAACGCAGCCGT
CGCCGCCCTCTGCACCCAGCCCAGGTCGCCACTGCTTCAGTCCGGTTCTC
AAAGCCTCAGCACCATCTTTTATCCCCGAGCAGCCTGGATCGTCGTTCCC
TCAGTCCGGACGCCACTGCTAGGTCCGACCACCGCCGCTTCTGATATTTC
GGTGAGTCTTTTCCTGTGGAGGTTTGGTCTCCCGATCTCTGTGGTAGCCA
CCTTAGGCGTGTACGGTCCTTTGAAAAATGGCCGAGTCAGAGAACCGCA
AGGAGCTGTCAGAATCCAGTCAAGAAGAGGCTGGTAATCAGATAATGGT
GGAAGGGCTCGGGGAACATCTGGAGCGCGGTGAAGATGCCGCTGCTGG
GCTTGGAGACGATGGGAAGTGCGGTGAAGAAGCTGCCGCTGGGCTTGG
GGAAGAAGGGGAAAACGGTGAAGATACTGCTGCTGGGTCCGGGGAAGA
TGGGAAAAAAGGTGGCGATACTGATGAGGACTCAGAGGCAGACCGTCC
AAAAGGACTTATC
GGTTATGTTTTAGATACAGACTTTGTTGAAAGTCTACCTGTGAAAGTTAA
GTACCGTGTGTTAGCCCTTAAAAAGCTTCAAACTAGAGCGGCCAATTTA
GAATCCAAATTCCTGAGGGAATTTCATGACATTGAAAGAAAGTTTGCTG
AAATGTACCAACCCTTACTGGAAAAAAGACGTCAGATCATCAATGCAAT
CTATGAACCTACAGAAGAGGAATGTGAATATAAATCAGACTCTGAGGAC
TGTGATGATGAGGAAATGTGTCATGAAGAGATGTATGGTAATGAGGAGG
GTATGGTACATGAATATGTGGATGAGGACGATGGTTATGAGGACTATTA
TTATGATTATGCTGTGGAAGAGGAGGAGGAGGAGGAGGAGGAGGACGA
CATTGAGGCTACTGGAGAAGAGAATAAAGAAGAGGAGGATCCTAAGGG
AATTCCTGATTTTTGGCTAACTGTTTTAAAAAACGTTGATACACTCACTC
CTTTGATTAAGAAATATGATGAGCCTATTCTGAAGCTCCTGACAGATATT
AAAGTTAAGCTTTCAGATCC

FIG. 9

TGGCGAGCCCCTCAGTTTCACACTAGAATTTCACTTCAAACCCAATGAAT
ATTTCAAAAATGaGTTGTTGACAAAGACCTATGTGCTGAAGTCAAAGCTA
GCATATTATGATCCCCATCCCTATAGGGGAACTGCGATTGAGTATTCCAC
AGGCTGTGAGATAGATTGGAATGAAGGAAAGAATGTCACTTTGAAAACC
ATCAAGAAGAAACAGAAACATCGGATCTGGGGAACAATCCGAACTGTAA
CTGAAGATTTTCCCAAGGATTCATTTTTCAATTTTTTCTCTCCTCATGGAA
TCACCTCAAATGGAAGGGATGGAAATGATGATTTTTTACTTGGTCACAAT
TTACGTACTTACATAATTCCAAGATCAGTATTATTTTTCTCAGGTGATGCA
CTGGAATCTCAGCAGGAGGGGGTAGTTAGAGAAGTTAATGATGCAATTT
ATGACAAAATTATTTATGATAATTGGATGGCTGCAATTGAGGAAGTTAAA
GCTTGTTGCAAAAACCTTGAGGCATTAGTAGAAGACATTGATCGTTAGA
GCAGAGTATACATGGCCCTGAAATTAACTgCCCTAGATATAGTTACTCAA
GGTATAAGAAgCCTTGTGTTCTGTATTTTgCTTTGTAGTGTTAGTTAAAAC
ATATGTTTCAAAAATATAAGAAAAGTTCAAAAACTAATTAATTTGACCTT
GAGTTTTAGTAGTAGAATGTTTTCAAGAAATGTACACTGTGGTAAATGAT
TTAAAACACTAGTATAGTGTTGTGTAGCTTAATCCTTCTGAAGTCTTTTTG
TCATGTAGCTATTAATCTGTGGCTATGAAATGATCAGAAATGCTAAGTGA
GATCAATATTTGTTTGGAAAAAAAATCTTGGGAAACAACCCAAGGGTTTT
CGCTGTTGTTGTTTTTCTTTTTCTATTTTTGTTTACTTAGTCCTTTAGCTAG
TGGATTTAATTTTGTTGTGCCTGCTTCATTTTGCAATAACAATGCAGTAG
AATTTAAAACTTGGATGCTTAAGAGGCCTGCATATAGATAAGAATTTCAG
GCAAAACTACATTTATTGTTAATAACAGCTTGTTCATAGGCTCTTGTATTT
TATGTAACTGTGATAAATAATGAAAACTTAGTTATATTGAGGTTATTGTT
TGTCGGTGAAGTGTTAGTCACAGTATTTTCAAAAGTTTGCACATATTGTT
CTGTGTAATTGTGTAAGCCATAATTACAGTGTTTAATTCTCTTTTCCTATT
ACATCATTCATTGAAAGTGATCACTTTACCATTTTGAAAAGATATTTCGT
GTTCTTTCACTGCAAAATAAAAAGAATAAAAATTTCAGAGTGTCTCATGG
AATTCC

[SEQ ID NO:3]

FIG. 9(CONT.)

HUMAN *BPX* 5′ REGION

ACTTAAAGGAAAAATTTATCTATAAACTGACAGAATTTAGAAATAAATA
CAACAATATGTAAACAGTTTTAATATCTGTGATAGTAACAAATTCTTTAA
ATCTGGAAAATAATAGTCACTTAAAATTTTAAAAAATTGTTCAATTAATA
AATGATCCAAGTTAGAAATATGAACAAAATAAACCTCACCAATAATTAC
TATAGAGAGGAAATTTTAATTACTGCAAAGCTTTCCATCCTATAAATACA
TTATCAAATAGTTTAACCATTTCTTTAATGCTGAGATTTAGATTATTTCCA
ATTAACTCAAAAGCATCAAGCAAATGTTATGATTTCTAAGAATAAACATA
ACTTTCCATTTTGGCTTTTGTATATATGTATATTTCTAACGGCTGTTAAAG
CCAGCATTAAGAAGGAGAAGCAGAAAGTCAGTATTGGGACTGGGGTTAT
TTATAAGCCAGGCAACTGGTTAATTGTGGTTAATTGTCTGGTATGTTTAC
TAGTCACGTAGTTGTATACACCATACTAGTTTTTCATCACAGGCCCTCAT
TCGCCCCCACTGCCATCGGACTTCCTCCTCCTCCCCTCACAGGAAATGTT
TCGAGAATTTTTCAACCTAAAATCATATAGCTTGTGAAAAATACCGACAA
ACATAATATAGAATATTTAAATAACTGACACGCCACCTAAAGACCATCA
GTGCTAATTCCTGGTGTTTTTAATCTTTGAAGCGTTTGTTTATCAGCTCTT
CCACCATCCACCTCTCCCCTCCCCAGGTCCCCGATCTAAAATCAAAGAG
ATTGATTTAGGATGGGTGGGTGCCTTGTCTTCTCTCATTGTTCGACATTTT
AGTTACGTTTTCTCTGAGCTCTCTGGAAAGCATAAAAGTATAATATCTGT
TAAAAGTTGGATGAATGAACTAATGAACGCAATGGGATTCCAGAAAACT
CTGCGGGAGATGGGCTAGAGGACGAGGAGGAGGTGGATGAATCAGCCA
TGTTAGAGAGCCTGGGAAGGTGAGCAGAGTTGAAAACTTGATAG
ATCTAATAATTTACTGGCTCTGGGTTTGTCAGTCACTACATTGCAGCAAA
TGAGATTAGAGCATAGTTGTGGGAGGGAAGGAGGTGACGCAGCAATCTA
TTTGCACCTAGAAATTTTAGGCAAGTGATAGCTGCGTAATCATACTGCGG
CACCGTTTTTTTCTTGCAGCAGTAGCTGCTTGCGGAGGAGGTCTGCAC
TGCAGCTCTCTGCAGTCTCCGGCTCTCTCCTGCAGGATCGGTCAACGCAG
CCGTCGCCGCCCTCTGCACCCAGCCCAGGTCGCCACTGCTTCAGTCCGGT
TCTCAAAGCCTCAGCACCATCTTTTATCCCCGAGCAGCCTGGATCGTCGT
TCCCTCAGTCCGGACGCCACTGCTAGGTCCGACCACCGCCGCTTCTGATA
TTTCGGTGAGTCTTTTCCTGTGGAGGTTTGGTCTCCCGATCTCTGTGGTA
GCCACCTTAGGCGTGTACGGTCCTTTGAAAA

FIG. 10

FIG. 11A

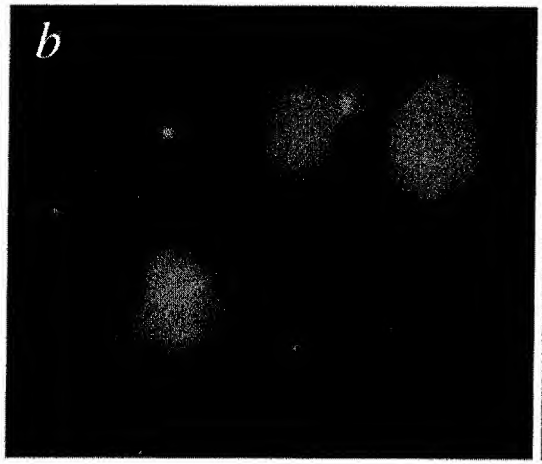


FIG. 11B

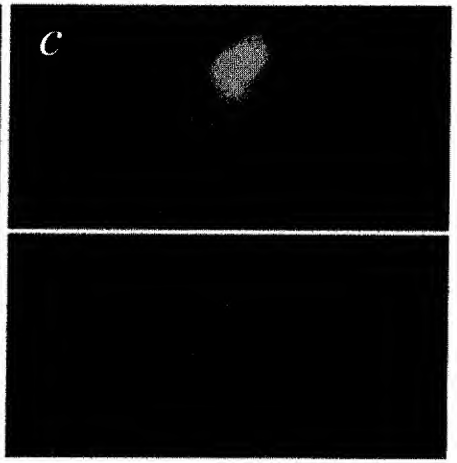


FIG. 11C

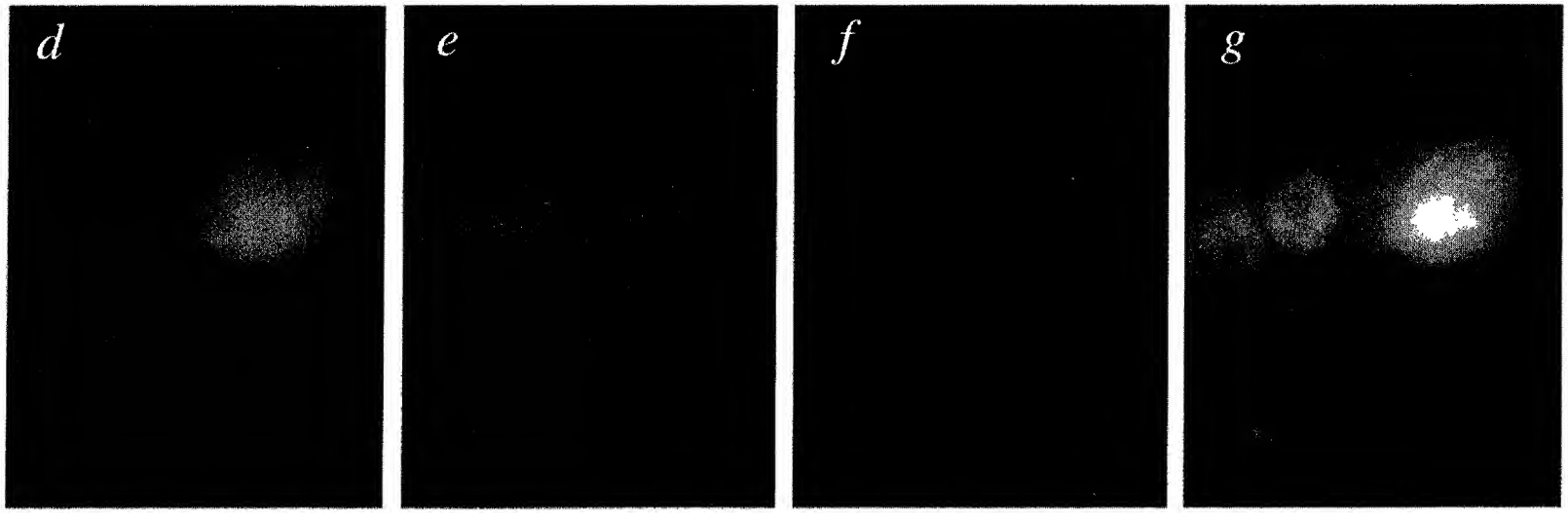


FIG. 11D FIG. 11E FIG. 11F FIG. 11G

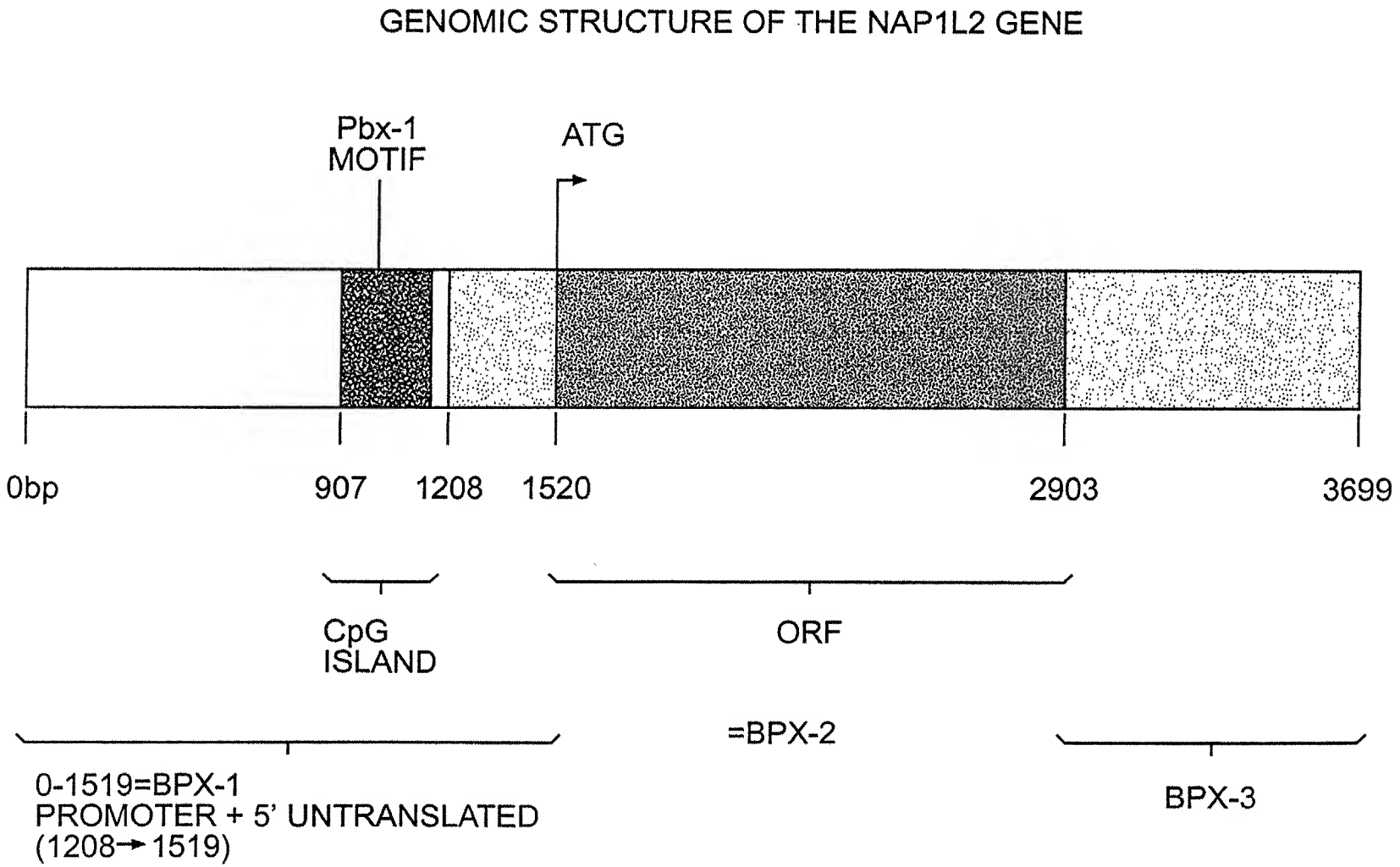

GENOMIC STRUCTURE OF THE NAP1L2 GENE
Pbx-1
MOTIF
ATG
0bp
907
1208
1520
2903
3699
CpG
ISLAND
ORF
=BPX-2
0-1519=BPX-1
PROMOTER + 5' UNTRANSLATED
(1208→1519)
BPX-3

FIG. 12